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10/644,051

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Haifeng Wang

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WARE FRESSOLA VAN DER SLUYS & ADOLPHSON, LLP
BRADFORD GREEN, BUILDING 5
755 MAIN STREET, P O BOX 224
MONROE, CT 06468

EXAMINER

PATHAK, SUDHANSHU C

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/644,051	Applicant(s) WANG ET AL.	
	Examiner SUDHANSHU C. PATHAK	Art Unit 2611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on January 25th, 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 7, 8, 11-14, 16, 17 and 20 is/are rejected.
- 7) ☒ Claim(s) 6, 9, 10, 15, 18 and 19 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-20 are pending in the application.

Response to Arguments

2. Applicant's arguments filed, in regards to the Specification Objections, in amendment dated January 25th, 2008 have been fully considered but they are not persuasive.

As stated in the Office Action, the terms "SUI" and "ISU" are used interchangeably, and are confusing as to what signals are being referred to, it is recommended that only a single acronym be used so as to clarify what terms are identified by the acronym. The applicants reasoning to avoid making corrections is not clear (and makes no sense) that just because the corrections will "require a lot of changes in the specifications, in **claims** and in Figures.....there is no reason to make the requested changes", **this is exactly why the specification needs to be corrected so as to avoid confusion and avoid an enablement (indefinite) rejection of the claims**. It is the applicants' responsibility to write a clear and concise specification clearly defining the invention and it is not for the Office to make the corrections. Furthermore, the MPEP Section 714.02 [R-3] Must be Fully Responsive states "In all cases where reply to a requirement is indicated as necessary for further consideration of the claims, or where allowable subject matter has been indicated in an application, a complete reply **must either comply** with the formal requirements or specifically traverse each one not complied with.

Drawing and **specification corrections**, presentation of a new oath and the like are generally considered as formal matters, although the filing of drawing corrections in reply to an objection to the drawings cannot normally be held in abeyance.

However, the line between formal matter and those touching the merits is not sharp, and the determination of the merits of an application may require that such corrections, new oath, etc., **be insisted upon prior to any indication of allowable subject matter**". Therefore, the specification objection has been **maintained** and the appropriate correction is required.

3. Applicant's arguments filed, in regards to the Claim Rejections, in amendment dated January 25th, 2008 have been fully considered but they are not persuasive.

In regards to the specific argument that the amendment to the claims "change does not affect the scope of the claims...", this is **incorrect**. Claim 1 has been amended so as to remove the "**storing means**" from the claim; this broadens the claim thus indeed changing the scope of the claim(s).

In regards to the specific argument that Kawamoto et al. (2003/0235240) does not teach "separating the input signal to a desired HSDPA signal with known spreading codes and to an interfering speech user signal with unknown spreading codes using a Walsh correlator of the blind SUIC receiver for further processing", **this is incorrect**. Kawamoto discloses in Fig. 9, element 117 & Page 1, Paragraph 2, lines 16-27 & Page 4, Paragraphs 57-58 and these are interpreted as: {The reference discloses performing correlations between the stored walsh codes and the received walsh code (desired code) wherein the correlation between the stored

walsh code which is the same as the received walsh code is interpreted as a known spreading code and the walsh codes not the same as the received spreading code are interpreted as unknown spreading codes. This is analogous to the instant application wherein the desired or transmitted spreading code is the known spreading code and the undesired or codes not transmitted spreading codes are the unknown spreading codes. Thus, the desired signal is separated from the undesired signals, since the maximum correlation value refers to the desired (transmitted) signal}. Furthermore, the applicant himself acknowledges that “Therefore the algorithm disclosed in the present invention does not calculate correlation for all spreading codes (as in Kawamoto et al) but **only** for the known spreading codes for the expected signal”. However, none of the claims recite calculating correlation for **only** the known spreading codes for the expected signal and the claim were rejected based on the **recited** claim limitations; however this limitation is indeed disclosed in the Kawamoto reference on Page 1, Paragraph 2, lines 16-27.

In regards to the specific argument that the Schmidl (6,816,541) teaches away from the embodiments of the present invention, however merely stating so does not make it true, since no discussion is presented supporting such an assertion. Furthermore, the MPEP in Sec. 2131.04 discloses “A reference is no less anticipatory if, after disclosing the invention, the reference then disparages it. **The question whether a reference “teaches away” from the invention is inapplicable to an anticipation analysis**. Celeritas Technologies Ltd. v. Rockwell International Corp., 150 F.3d 1354, 1361, 47 USPQ2d 1516, 1522-23 (Fed. Cir.

1998) (The prior art was held to anticipate the claims even though it taught away from the claimed invention. “The fact that a modem with a single carrier data signal is shown to be less than optimal **does not vitiate the fact that it is disclosed.**”).

In regards to the specific argument that no motivation is provided for combining the Kawamoto in view of Blessent with the Schmidl reference without the benefit of hindsight, this is incorrect. An explicit motivation is provided “Schmidl teaches implementing a one-stage soft-decision parallel interference cancellation and this is implemented in the receiver as described in Kawamoto in view of Blessent, thus providing a reliable received signal with minimal implementation (computational) complexity and provide a economical and reliable receiver.”, and the Schmidl reference explicitly states that it is obvious to use soft decisions if a one-stage of cancellation is used and further it is obvious to one of ordinary skill in the art at the time of the invention that using only one stage reduces the computational complexity of the receiver and further increases the speed of the decoding process.

Therefore, based on the above response to the arguments the claim rejections has been **maintained**.

Specification

4. The disclosure is objected to because of the following informalities:

The disclosure uses the acronym(s) “SUI” and “ISU” interchangeably; it is recommended that only a single acronym be used so as to clarify what terms are identified by the acronym.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-2 (method) & 11, 20 (apparatus) are rejected under 35 U.S.C. 103(a) as being unpatentable over Kawamoto et al. (2003/0235240) in view of Blessent (2003/0021333).

In regards to Claims 1-2, 11 & 20, Kawamoto discloses a method (apparatus) of a blind speech user interference cancellation (SUIC) for a high speed downlink packet access (HSDPA) comprising the steps of: receiving an input signal in a discrete-time domain by a receiving means of a blind SUIC receiver (Fig. 9, elements 110-112) {Interpretation: The reference discloses receiving a CDMA signal and wherein it is inherent that the demodulation and despreading includes a digitizing (discrete-time domain) the received signal}; and separating the input signal to a desired HSDPA signal with known spreading codes and to an interfering speech user signal with unknown spreading codes using a Walsh correlator of the blind SUIC receiver for further processing (Fig. 9, element 117 & Page 1, Paragraph 2, lines 16-27 & Page 4, Paragraphs 57-58) {Interpretation: The reference discloses performing correlations between the stored walsh codes and the received walsh code (desired code) wherein the correlation between the stored walsh code which is the same as the received walsh code is interpreted as a known spreading code and

the walsh codes not the same as the received spreading code are interpreted as unknown spreading codes. This is analogous to the instant application wherein the desired or transmitted spreading code is the known spreading code and the undesired or codes not transmitted spreading codes are the unknown spreading codes. Thus, the desired signal is separated from the undesired signals, since the maximum correlation value refers to the desired (transmitted) signal}. However, Kawamoto does not explicitly disclose a storing means for storing the received signal and the correlation between the unknown spreading codes and the received signal is interference.

Blessent discloses a receiver in a spread spectrum communication system (Fig. 2) comprising a storing means (memory) for storing the received signal (Fig. 2, element 202). Blessent further discloses a estimating noise by performing a correlations between the received walsh code and the walsh codes not received (Paragraph 17, lines 3-6). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Blessent teaches a storing means for storing the received signal and the correlation between the unknown spreading codes and the received signal is interference and this is implemented in the receiver so as to store the received signal and estimate and isolate the noise so as to more reliably decode the desired signal.

7. Claims 3-5, 7-8 (method) & 12-14, 16-17 (apparatus) are rejected under 35

U.S.C. 103(a) as being unpatentable over Kawamoto et al. (2003/0235240) in view of Blessent (2003/0021333) and further in view of Schmidl (6,816,541).

In regards to Claims 3-5, 7-8, 12-14 & 16-17, Kawamoto in view of Blessent discloses a method of blind speech user interference cancellation as described above. Kawamoto further discloses the receiver to be a blind receiver output (Paragraph 56) {Interpretation: The reference discloses a receiver for recovering the transmitted signal without knowing the transmitted spreading code}. However, Kawamoto in view of Blessent do not disclose generating a soft-decision HSDPA signal from the desired HSDPA signal using a one-stage soft-decision parallel interference cancellation (SD-PIC) receiver.

Schmidl discloses a parallel interference cancellation estimator based on one-stage soft-decision (Abstract, lines 1-4 & Column 12, lines 14-51 & Column 13, lines 18-21, 26-30) {Interpretation: The reference discloses implementing a one-stage soft-decision parallel interference cancellation}. Schmidl further discloses generating an adjusted signal by subtracting the interference from the input signal using an adder (Fig. 1, element "adder" & Column 6, lines 35-43, 49-51 & Column 11, lines 8-13, 42-47). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention that Schmidl teaches implementing a one-stage soft-decision parallel interference cancellation and this is implemented in the receiver as described in Kawamoto in view of Blessent, thus providing a reliable received signal with minimal implementation (computational) complexity and provide a economical and reliable receiver.

Allowable Subject Matter

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8. Claims 6, 9-10, 15, 18-19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sudhanshu C. Pathak whose telephone number is 571-272-5509. The examiner can normally be reached on 9am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chieh M. Fan can be reached on 571-272-3041.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sudhanshu C Pathak/
Examiner, Art Unit 2611

/Chieh M. Fan/
Supervisory Patent Examiner, Art Unit 2611